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ABSTRACT

Educational outcomes are maximized when curriculum development and media resources are skillfully blended to meet most effectively the needs of students. School media programs should provide inquiry and discovery experiences which support learning activities. This brief monograph makes specific suggestions for use of media in the following subject areas: (1) foreign and second languages; (2) mathematics; (3) physical education; (4) social studies; and (5) vocational education. (EMH)

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Media and Instruction

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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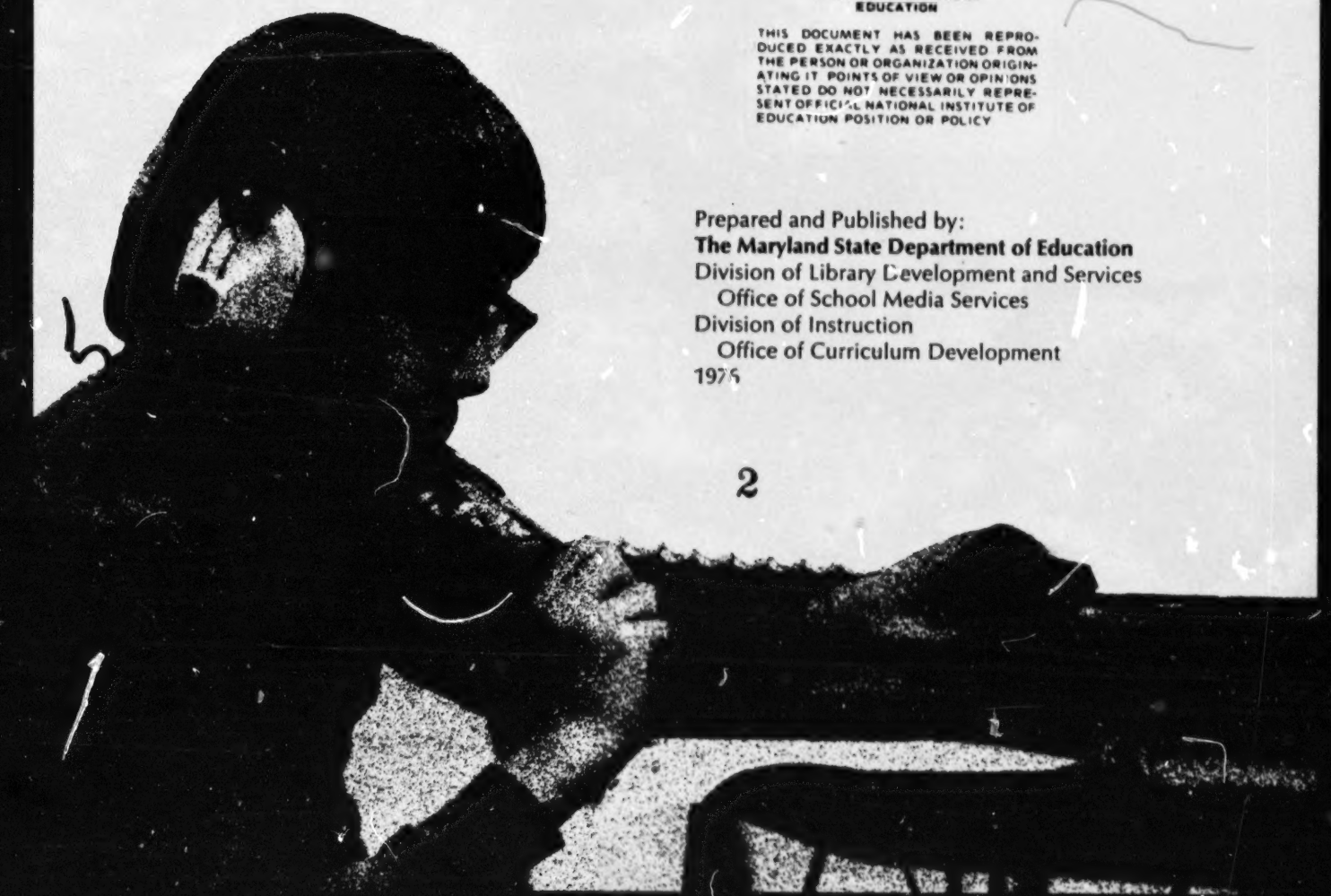

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Foreword

Currently, school media programs are being shaped by curricular and instructional developments. The two go hand in hand and are totally dependent upon one another. The capabilities of creating improved instructional programs depend upon the quality of the media program: its services, staff, and resources. Likewise, a media program which does not mirror the needs of the instructional program is not fulfilling the needs of the school it was designed to serve.

The staffs of the School Media Office, Division of Library Development and Services, and the Office of Curriculum Development, Division of Instruction, have developed the material contained in this publication. Many persons from local school systems and colleges and universities have assisted in the development and writing of the various portions of this document. Without their assistance, the project could not have been completed. "Media and Vocational Education" was prepared by the Office of Program Development, Division of Vocational-Technical Education.

It is hoped that the information contained in this publication will assist school personnel in the growth and development of media programs which are an integral part of the instructional process. Through cooperative activities among classroom teachers, media personnel, and administrators this can be accomplished.

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for Libraries

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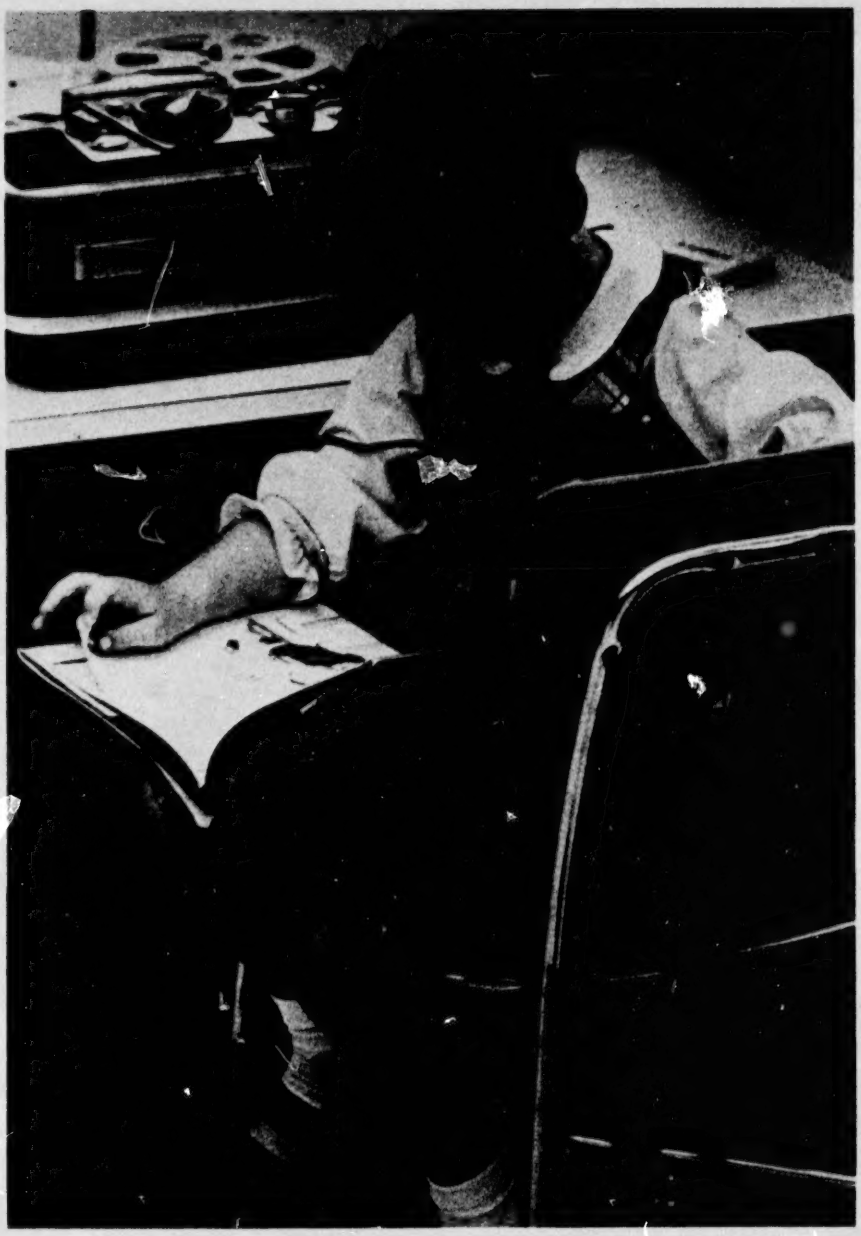

Introduction

The blending and careful merging of all types of learning resources into our schools' instructional programs are providing many new learning alternatives. There exists today unlimited capabilities for furthering one's learning opportunities through available resources and technological developments. Through research, planning, and other developmental activities, a cadre of ideas and programs oriented to meeting student needs has been produced.

Today's teachers are calling upon a myriad of instructional resources for assistance. Instructors frequently look upon media, not with the idea of why it should be used in teaching, but instead, how media can be used to do a more effective job in every area of the curriculum. Daily, more and more teachers are incorporating knowledge, techniques, and resources into their classroom activities. However, one word of caution needs to be made: media are simply extensions of people; media exist as alternative means for communicating ideas.

It can become too easy for a media program to run parallel to the instructional program with little or no interaction. There must be an aggressive program of media services, cooperatively developed by the media staff and fellow classroom teachers. The building principal and other school administrators are integral members of this team. They frequently serve as the catalyst in getting the two areas together.

Since media specialists have training in the evaluation, selection, production of resources, and in instructional methods, they are able to contribute to the instructional design process. Together, the teacher and media specialist must examine the effect resources are having upon student learning. This will assist in assuring that there exists a collection of resources which are supportive of the school's instructional program.

The school media program must be oriented to meeting student learning needs. The information, regardless of format and level of difficulty, must be made readily and easily available. Print and nonprint resources are equal partners in the learning process. The media program must provide production and consumption activities in many sensory modes, not just in reading the printed word or hearing the recorded word.

The media center must become more of a concept than a physical place. There will always be a need for a facility, but there is no reason why media program activities cannot take place in any number of settings found throughout the school building.

The school media program's role is to provide inquiry and discovery experiences in support of learning activities. Media are a liberating factor which make possible a widespread sharing of human experiences in the richest possible form.

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Media and FOREIGN and SECOND LANGUAGES

Overview

The history of foreign-language teaching, including the teaching of English as a second language, has been marked by two traditions: verbal-verbal approaches, such as grammar-translation and reading methods, which rely heavily, if not exclusively, on print media, and the verbal-technological systems, such as the Direct Method and the Audio-lingual approach which, while still using print media, make increasing and varied use of nonprint materials and available equipment. These two traditions, sometimes in opposition, have merged into eclectic or blended forms of teaching foreign languages and second languages which rely on printed as well as nonprint modes of communication. Whatever the philosophical or methodological stance adhered to in a particular school or school system, today's teacher of foreign languages and English for Speakers of Other Langues (ESOL), at the very least will use pictures or line drawings to teach or reinforce meaning, cassettes or audio tapes to develop oral fluency, and filmstrips or films in the teaching of culture. The heterogeneous, linguistic, and cultural background of the typical ESOL class, whether elementary, secondary, or adult, almost mandates heavy use of visual materials to teach meaning, for instance.

In recent years, three trends in the teaching of foreign languages and ESOL have forced more than minimal use of all types of print and nonprint materials: the increased emphasis on the teaching of culture in conjunction with the development of the four language skills; growing use of more individualized forms of instruction, particularly for reinforcement and enrichment; and interdisciplinary programs which may combine such seemingly disparate curriculum components as geography, regional cooking, and a foreign language. Because all of the trends just described cut across traditional and separate curricular lines, their implications for the teaching of foreign languages and ESOL cannot be fully realized without the total resources of a unified school media program and the collaboration of school media staff. Indeed, it seems to call for a different type of curriculum design: an integrated organization of people, machines, ideas, management, and procedures.[1] Thus to design and implement a semester course, which integrates geography and regional cooking as well as Spanish or French, requires print and nonprint materials which go far beyond those available under the heading of the foreign language itself.

Recent Trends

The growing interest in techniques for personalizing and individualizing instruction in ESOL and foreign languages has revived interest in the language laboratory and the possibilities it offers for self-pacing, enrichment, or reinforcement. Here again, effective use of such techniques is impossible without the use or the development of specialized print and nonprint materials. Self-pacing programs, particularly those which focus on listening and speaking skills, make heavy use of all types of equipment and audio materials in the language laboratory or electronic classroom.

To design and manage an independent study program at the more advanced levels of Spanish, German, or French for students who are interested in learning more about the art, drama, music, educational system, social problems, or history of ideas of the foreign country, requires the full range of material, equipment, and services which only a media center can provide. The contribution can also operate in the other direction: the cultural materi-

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[1] Robert Heinich. *Technology and the Management of Instruction,* Monograph 4, n.d.

[2] "How Teachers Perceive Media." Summary of research findings of Syracuse University Project prepared by the Educational Technology Department, Education Division, University of Maryland (Baltimore County), n.d.

[3] "The Function of Media in the Public Schools." Barry Morris (Ed.) Washington, D.C.: NEA Division of Audiovisual Instructional Service, 1962.

als or special projects developed for foreign-language or ESOL instruction might well be deposited in the media center to be shared with students and teachers of other subject areas. Similarly, brief foreign-language "sampler" units might be set up in the media center for those students, teachers, or parents who are interested in exploring a particular language and culture. In some instances, more extensive self-pacing materials can be made available through the school media center to students, teachers, administrators, or members of the community wishing to study another language on their own for travel, work, or as an avocational interest.

Media Services and the Teaching of Foreign and Second Languages

The increase in use of media services, materials, and equipment by teachers and students of foreign languages has strong implications for teacher-training programs. Preservice programs in foreign language education, which do not already include training in audiovisual communications, might well be expanded to include such a component. Ongoing inservice programs for experienced teachers of foreign languages are perhaps even more crucial as innovative programs are developed and newer types of equipment and materials are introduced because these may be regarded as a threat. A new form of resource input or medium of instruction may be viewed as disruptive of established routine and individual ways of teaching, distracting to students, or as one more thing to worry about.[2] All of these are legitimate concerns to be discussed honestly and openly by media and foreign language personnel rather than brushed aside with the implication that the teacher is somehow not keeping up with the times. Education is a matter of growth and development for the teacher as well as the student, and it is imperative that any new type of technological methodology be introduced with care.[3] The teacher must be involved in the initial selection and review process as well as deciding on the evaluation procedures to be used in measuring the effectiveness of media utilization in foreign and second-language instruction.

Media and Instructional Sequence

In trying to determine at what points in the total program particular types of instructional media would be most appropriate and effective, consideration must first be given to the level of instruction: basic (survival) through advanced in ESOL and levels I-VI in foreign languages. It has also been something of a tradition to use instructional media more heavily at the lower or beginning levels of language instruction primarily for the teaching of meaning, the development of listening and speaking skills, and the teaching of cultural and grammatical concepts. Older types of instructional media might be used more extensively or in new ways: slide series to vary the teaching of meaning or to serve as a backdrop for role-playing; audio or cassette tapes to pace and explicate reading on an individual basis or with small groups of students; and videotapes for reinforcement or remedial work in pronunciation. Other, less familiar types of instructional media might well be studied for possible use at all levels of language instruction: super 8mm film loops, where there are already extensive series of titles in language arts, science, home economics, and physical education, could be used to stimulate the development of speaking and writing skills or to teach more specialized vocabulary in interdisciplinary units. Still other forms of audiovisual technology such as the video cassette, which have potential for language instruction, are or will become available and need to be studied carefully in terms of appropriate and effective use.

At the upper or more advanced levels of language instruction, emphasis has traditionally been placed on more purely verbal approaches in the development of reading and writing skills. It is precisely at these levels, however, that instructional media can be used most extensively and effectively to enhance reading and writing and to further develop listening and speaking skills which, unfortunately, often deteriorate in advanced foreign language classes from lack of practice. Increasingly at these levels, the foreign or second language, integrated with instructional media, can lead to the acquisition of knowledge in other fields often on an independent and personalized basis. The possibilities are endless: Italian opera, German history, archeology in Mexico, American culture, geography of Russia, French scientists, and Latin learned through the medium of French, Spanish, or Italian rather than English.

It is at the more advanced levels that students become more independent and more individual in their

use of language and instructional media. They can begin to use the foreign or second language together with various types of media to create materials not only as a form of self-expression but for use by other students. Indeed, at this level, students, media specialists, and teachers might well become partners in the process of creating materials for deposit in the school media center. Whenever possible, such materials should be duplicated and disseminated within the school system for use in other media centers.

Media and Teaching Techniques

Within the levels of instruction in an ESOL or foreign language program, there are specific points in the teaching-learning process where instructional media can more easily be integrated with the existing repertoire of strictly "live" techniques or methods where a human agent does all the work. The partial listing with examples which follows will undoubtedly suggest many other possibilities.

Motivation: General travel films are good for discussion at all levels. Short video or audio tapes of language or cultural situations for problem-solving: How would you find your way out of this embarrassing situation in Russian? Would you really be expected to act this way in a classroom in a French school?

Presentation of unfamiliar material: Traditionally, this has always been done "live" in ESOL and foreign language classes. It is a crucial point in the instructional program. The introduction to new and more complex conversational patterns or to unfamiliar reading material, for example, can be greatly enhanced by the use of a much wider range of instructional media than is presently being used: cartoon strips, hand-drawn filmstrips, slides, transparencies, videotape segments, and film clips, in addition to the usual pictures or stick figures rapidly sketched on the blackboard. School media specialists can provide advice and help in developing materials for the initial presentation of unfamiliar linguistic and cultural material.

Reinforcement: Meaning and cultural context, as well as language structures and patterns, must be drilled and practiced orally in the language laboratory or in the classroom via playback equipment if the student is to retain what has been presented. Meaning and cultural context are usually neglected in favor of language-as-language in drill situations. Various types of visual material—filmstrips, slides, transparencies, and videotapes—can be used, particularly in the language laboratory, in combination with recorded materials, to enhance the retention of meaning and context, to vary the pace of practice, and to relieve the strain and monotony of drill. Reading practice and writing drills can be carried out in combination with recorded materials in the language laboratory or classroom.

Personalization: In order to truly acquire the foreign or second language, the student must be able to use it to describe himself and to express his views, concerns, and feelings. Parallel to personalization is the expansion of acquired language into new social and cultural situations. Personalization is difficult in the typical foreign-language or ESOL class of 20-35 students. The cassette recorder is invaluable as a personalization tool for interviews, personalized questions, individual commentaries and reactions to pictures, questions, situations, or topics, for complaints and gripes, for oral diaries and histories, for exchanges of taped letters, for poems, songs, skits, and snatches of original dialogue.

Expansion: As language is acquired, opportunities should be provided for the student to use it in new and different social contexts and environments. This is easier in ESOL programs where the surrounding linguistic and social environment happens to be English and American. In the foreign-language classroom, it must be done vicariously through simulation and role-playing. Both of these techniques can be enhanced by using projected visuals—slides are particularly flexible—as backdrops or to create an ambience or an approximation of the foreign cultural environment.

Enrichment: Many students, even at the lower levels of language instruction, can begin to relate their avocational or career interests in terms of the foreign or second language they are studying. Essentially, this has to be an individualized process with a minimum of direction on the part of the teacher and the media specialist, who can provide help and suggestions as well as more concrete aids such as learning activity cards or mini-paks. Often, interest in a previously unexplored area can be sparked by a colorful and attractive learning station in the classroom or media center. The use of a wide range of nonprint as well as print media is basic to enrichment and implies a close working relationship among student, teacher, and media specialist.

Student Evaluation: Assessment of student achievement in foreign languages and ESOL has moved in recent years to a more functional and situational approach. It is important to know how a student will react, linguistically and culturally in a given social situation, and in many instances, this cannot be done by means of the conventional paper-and-pencil test. Students role-play, respond, or comment in oral or written form on situations presented on film, audio or videotape. At the more advanced levels, film segments with the original soundtrack cut off, are projected so that students can provide their own dialogue or commentary. Oral work is recorded for later analysis and evaluation by the teacher. Reading comprehension may be evaluated by conventional means—written answers to questions, true-false or multiple-choice statements, and reordering of sequence—or it may involve short oral answers, brief summaries, oral commentary, and opinion recorded on tape. Visual materials such as cartoons, city maps, and forms may be used to evaluate functional writing skills.

Media and MATHEMATICS

There were days when mathematics was taught through the use of only a textbook, blackboard, and chalk. But those days disappeared as research indicated that students learn better and remember longer when calculators, models, tapes, films, and filmstrips are incorporated into lessons. The advent of television and advanced technology helped to hasten a revision in instructional techniques and strategies.

Mathematical skills are of utmost importance and can be taught and/or reinforced through the use of calculators, computers, and teaching machines. Concepts can be taught and/or reinforced through the use of single concept film loops, filmstrips, films, video tapes, programmed instruction materials, and other resources found in our school media centers. Montgomery County first developed math programs to be utilized in their Computer Assisted Instruction program within the three pilot schools.

Laboratory activity and task-oriented multimedia programs involve students individually or in small groups and the emphasis is on doing mathematics, using all resources possible both print and nonprint to strengthen and develop mathematical concepts. The size of the group to be taught (individual, small, and/or large) determines the type of media to be utilized by the teacher and student(s) to meet specific objectives.

The Maryland State Board of Education declares that Maryland must be metric in all phases of public education by 1980—that includes instructional and noninstructional areas. The State Plan provides goals related to teacher education, the review and revision of curriculum, and the evaluation, selection, and purchase of materials. The market is swamped with materials, both print and nonprint, so selection will need to be handled carefully as many materials are inadequate and/or in error. Assistance in evaluation of materials is available from the Maryland State Department of Education. A workshop for Media and Metric supervisory personnel from each local educational agency was conducted June 10, 1975, to assist in the implementation of the State Plan, specifically in the areas of evaluation and selection of media.

Media personnel have had more opportunities to work with metric measurements than many others in education since films, projectors, and photographic lenses are measured in metric units. Many people think of 16mm and 35mm as names of equipment, just as Kodak or Bell and Howell or Standard, not realizing that the size of the film from edge to edge is 16mm or 35mm. There are many other instances where metric units or measurements have been used, such as medicine, optics, and sports. Metric terms are used to record the Olympic competitions and this requires knowledge of measuring and weighing in metric terms, including distances, lengths, capacities, and temperatures.

To provide and implement the Maryland State Plan for Metrication, the awareness phase of the plan was accomplished through numerous workshops conducted by the Department to which each school sent a representative who passed information along to his associates. In some instances the representative was the media person, thus the school's media collection was used toward implementation of the metric system.

Inservice activities are constantly being planned by local education agencies and by institutions of higher education to train teachers. Baltimore County has four "meter maids" and a "metric gnome" teaching exciting inservice courses for teachers.

Classroom instruction in the metric system is taking place in most elementary classrooms and in all secondary mathematics and science classes. Schools have arranged metric weeks and metric days, held assemblies, written songs, and constructed metric scale models of the school building, all of which generate interest and excitement.

Video tapes of the State workshop have been made and sets distributed to each local education agency as a model for inservice training, emphasizing teaching techniques and strategies as well as content. Sound filmstrips are being completed to be given to each local education agency to be used for individual or group instruction in content. The Division of Instructional Television has prepared and aired three programs on "Enter: Metrics."

In all instruction, classroom and multimedia, a totally metric activity-oriented approach is used with emphasis placed on length, volume, mass, time, and temperature. The sequence of introduction of the units parallels the sequence used in teaching the customary system.

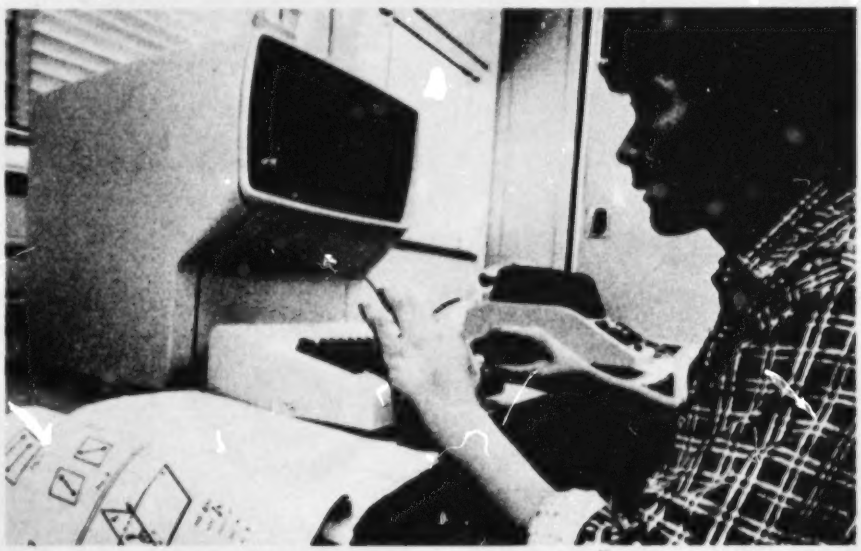
Since mathematics is a language, students must be able to listen to, to speak, and to write it. The use of audio tapes can be very valuable in the improvement of listening skills and can provide opportunities for the student to speak and then listen to himself. The writing of mathematics is the one aspect which has received much attention through daily written assignments. This can be expanded through the use of overhead and opaque projectors, so that others can see and critique solutions and proofs.

Individual strengths, weaknesses, and interests can often be addressed through the use of single-concept film loops and through individualized teaching machines. The hardware, however, is of little value unless the software is appropriate to the objectives to be accomplished.

So much emphasis is given to nonprint media resources that printed resources are often overlooked. A student should recognize that the text being used represents the thinking of one person or one team of persons. Methods, explanations, algorithms, and applications used by others should be considered whenever possible with attention focused on differences, similarities, and comparisons. Many concepts and skills can be taught or reinforced through the use of manipulatives and equipment. Individual sets of materials or kits need to be selected carefully on the basis of safety as well as appropriateness.

The housing of mathematics materials, media, and manipulatives needs to be based on easy access and availability. Often this requires housing the materials in a mathematics laboratory or satellite center in addition to the central media center.

All the money in the world for purchase of the finest hardware and software would be of little value without a teacher and media specialist who can expertly fuse all resources, modes, and strategies of teaching into a program that is interesting, challenging, and valuable to the students.



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Media and PHYSICAL EDUCATION

Are the physical educators of Maryland meeting the potential for utilization of media centers? How can media be used almost daily to individualize instruction in our regular physical education programs? In answering these questions, one must not only examine the trends in the use of media in physical education, but consider the related implications for materials, equipment, personnel, and space.

The potential for media centers being used in physical education instruction becomes apparent in an examination of present and projected trends. Media can be used almost daily in our instructional program. Services, materials, and equipment can be secured either in-school through the media center or through county-wide or geographically zoned media centers which are designed to supplement the local school.

INSTRUCTIONAL AIDS

Instructional aids are neither new to the teaching profession nor foreign to the physical educator who is concerned with the utilization of media in providing an optimum learning system. Each medium makes its own contribution to the instructional process by enriching the potential for teaching and learning. The materials and equipment necessary for the production of self-made teaching aids should be available to physical education teachers through their media center.

In the planning of physical education programs, audiovisual equipment and supply needs must be identified. Proper use of the following media in physical education can simplify and improve instruction.

Television

The use of television in the schools has grown measurably since the 1950's in making a contribution to the increasing demands on the curriculum. Television utilization in physical education is now in reach, as teachers in Maryland are presently recording class proceedings, analyzing skills, providing an immediate feedback system for themselves and pupils, providing instruction during individual or group work, and evaluating teacher and pupil behaviors objectively. A television camera and videotape recorder open avenues of instruction in the gymnasium, while a portable camera enhances the instructional system in the outdoors. Video cassette tapes can be utilized to introduce new sports and activities; to present new officiating techniques, rules changes, and interpretations; and to stress concepts such as legal liability in physical education.

Films, Film Loops, and Filmstrips

Films, film loops, and filmstrips are often viewed on the gym walls or on a screen with specific skill(s) demonstrated and practiced immediately thereafter. Many physical education teachers enjoy and demonstrate a degree of expertise in taking and producing homemade slides, film loops, filmstrips, and films as teaching aids. Teachers can secure further direction and assistance in the production of these materials either through their school media specialist or county supervisor of physical education. Physical educators are encouraged to consult their professional magazine, *The AAHPER Journal of Physical Education and Recreation*, which provides media references and resources in physical education to keep teachers abreast of the newest available materials. Additionally, a suggested source list of film and filmstrip suppliers relating to physical education is identified in Appendix A.

Programmed Instruction

Programmed instruction can be a valuable learning aid in physical education. In the psychomotor domain, a series of skill sequences could be programmed for a particular physical education activity. Certain skill areas, such as the composition of a gymnastic or dance routine, lend themselves to programmed instruction

particularly well. Similarly, programmed instruction can be effectively used in the cognitive and effective domains.

Posters, Pictures, Charts, and Diagrams

Visual presentations can provide motivation and a more meaningful learning experience for students. Specific uses for these media are discussed in subsequent sections. Through the use of the drymount press, visuals may be mounted and preserved.

Overhead Transparencies

Utilization of transparencies of diagrams and explanation of activities can enhance instruction without requiring a darkened area.

Print Materials

Sports biographies, novels, newspapers, and magazines are valuable teaching aids in physical education that are available through media centers.

Audio Resources

Records and/or tape recordings are necessary components of a mediated physical education program.

THE INFUSION OF MEDIA ON INSERVICE EDUCATION

A vital and major contribution of the utilization of media in physical education is in the area of inservice teacher education. Inservicing is not only working with student teachers, but can include pre-school orientation, State-approved workshops, teacher helping teacher on an individual basis, or small-group activities. The effective utilization of media can enhance both pre-service and inservice teacher education as follows:

1. Pre-school orientation refers to the orientation of new physical education teachers to available resources. Sample materials can be provided in conjunction with explanation-demonstrations on the use of videotape, transparencies, drymount press utilization, and other media.
2. In-school inservicing can include the reproduction and dissemination of videotaped demonstrations by master experts to be used on a volunteer basis by teachers. These can provide in-depth analysis of spotting techniques in difficult gymnastics skills such as the Eagle Catch on the uneven parallel bars.

   The sharing of innovative instructional ideas should be a major thrust in physical education. One particular school developed a programmed slide series of a golf course layout where, through problem solving techniques, students had to determine which club to use, implications of rules, and scoring activities.

   Such materials can be made available through a school or county-wide resource center.

USE OF MEDIA TO PERSONALIZE INSTRUCTION IN PHYSICAL EDUCATION

Teachers can utilize a variety of media to personalize instruction and make physical education more meaningful and relevant to each student. The following suggestions are offered as means of facilitating instruction through use of varied media. Each example is practical in the sense that it has been implemented in one or more Maryland school systems already.

When task-teaching or using learning activity packages, the facilitator should employ a wide range of print and nonprint media. Specifically, one might:

1. Provide each student with a personal chart of beginning, intermediate, or advanced tasks to be pursued dependent on the child's entrance skills. A portion of the chart should allow space for the learner to check his progress as he proceeds at his own pace with teacher direction and guidance.
2. Erect stations within the facility where learning tasks are performed. Media such as posters, film loops, overhead transparencies, and photographs might be used at these areas to facilitate learning.
3. Initiate use of photographs and videotaping for the student's self-analysis of his own skill acquisition and for teacher use in diagnosing individual needs and prescribing learning activities to meet them.
4. Utilize the physical education and/or school media centers for students to pursue independent projects or fulfill contracts. Both print and nonprint media should be available for these purposes.

To enhance social relationships and humanism, the instructor might encourage peer teaching and reciprocal learning through student utilization of the videotape to film and analyze each other's performances. If a videotape unit is unavailable, one's performance might be compared with that of an expert shown via photographs, slides, loop films, or motion pictures.

Within a mass teaching situation, personalized instruction can be emphasized by providing each child with mimeographed or dittoed diagrams of a variety of skills or parts of a skill to be performed. Although the entire class may practice a skill together under the direction of the teacher, each student can be prompted to compare his own form with that pictured. This technique can also be utilized in reciprocal or peer teaching.

Students should be motivated greatly in physical education through expanded use of various media. Bulletin boards, which picture individual students and their peers correctly demonstrating skills, raise the interest level of classmates and enhance the self-concepts of those performing. Non-commercial films and slides depicting peers in positive and pleasant learning situations accomplish these same purposes. Students normally react with greater curiosity, attention, and enthusiasm to photographs, slides, or films in which familiar students or they themselves are the models rather than to media using professional or older actors, even though the latter group may

provide a more expert demonstration or pose.

Although the cost of some audio-visual equipment makes it prohibitive for individual teacher purchase, the instructor who wishes to maintain a high motivational level in his classes, while attempting to meet students' educational needs, might give careful consideration to the purchase of an inexpensive slide, 8mm movie, and/or standard camera. Incorporating these teaching aids on a regular basis in carefully planned lessons should increase teaching effectiveness and student interest tremendously.

PROGRAM APPRAISAL

In his appraisal of the learning system, the teacher should refer his judgement to both the tangible and intangible factors involved in a particular pattern of organization for learning. Increased public understanding and support for physical education programs utilizing media can be won when a teacher can demonstrate "accountability." This can begin by the teacher answering the questions of whether he accomplished what he set out to do and whether he used appropriate and adequate materials and resources.

CONCLUSION

Future trends will indicate an increased emphasis on the production of materials, particularly in needed areas such as duckpin bowling, dance, and skills for elementary-age students. As the trend toward more independent study in physical education increases, increased provisions will be necessary for the inclusion of resource centers specifically designed to house books, charts, film loops, filmstrips, and other media to aid in an individualized, or group, instructional process.

The burden for providing effective instruction lies with the teacher. While the teacher cannot learn for the student, it is mandatory that he continue to keep abreast of latest trends and materials in order to review and revise the instructional system which he is operating to bring about maximum performance on the part of students.

Appendix A

Films, Filmstrips, and Loopfilms

Association Films, Inc., Broad at Elm, Ridgefield, New Jersey 07657

Bailey Films, Inc., 6509 De Longpre Avenue, Hollywood, California 90028

Castle Films, United World Films, Inc., 1445 Park Avenue, New York, New York 10029

Coronet Films, Coronet Building, 65 E. South Water Street, Chicago, Illinois 60601

Crown Films, 503 W. Indiana Avenue, Box 890, Spokane, Washington 99210

Documentary Films, 3217 Trout Gulch Road, Aptos, California 95003

Ealing Film Loops, 225 Massachusetts Avenue, Cambridge, Massachusetts 02140

Educational Activities, Inc., Freeport, New York 11520

Encyclopedia Britannica Films, 1150 Wilmette Avenue, Wilmette, Illinois 60091

Film Associates, 11559 Santa Monica Boulevard, Los Angeles, California 90025

Jan Handy Organization, 2821 East Grand Boulevard, Detroit, Michigan 48203

Palmer Films, Inc., 611 Howard Street, San Francisco, California 94116

School Film Service, 549 West 123rd Street, New York, New York 10027

Teaching Film Custodians, 25 West 43rd Street, New York, New York 10036

Valdhere Films, 3060 Valleywood Drive, Kettering, Ohio 45429

Wright Films, 309 M. Duane, San Gabriel, California 91775

Young America Films, 18 East 41st Street, New York, New York 10017

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Media and SOCIAL STUDIES

In the last decade, social studies has changed markedly in our schools across the country. Social studies today encompasses a broad interdisciplinary area, concerned with important problems of society and the individual's role in it. A multi-disciplinary emphasis has emerged, drawing on the behavioral and social sciences—anthropology, biology, social and developmental psychology, and sociology.

A variety of media comprise an integral part of the teaching-learning process in the social studies curriculum. The best approach to any lesson is to tailor it to the needs of a particular class at a particular time. This necessitates the teacher and the media specialist familiarizing themselves with the whole array of available print and nonprint materials.

The teachers of social studies and the media specialist must share the responsibility for initiating a curriculum that arouses interest and provokes questions that demand research and further exploration. "Student involvement" is a key phrase in the development of the curriculum. Different ability levels must also be considered in planning the social studies curriculum and selecting print and nonprint materials. Each student is a unique individual having special needs and desires, as well as their own rate and style of learning. The student must encounter experiences which will build self-image and enhance relationships with other human beings. A social studies curriculum based on centers of interest, problem situations, and activity lends itself to student participation on various levels of difficulty. Thus, cooperative planning of social studies curriculum should permit individual students to demonstrate different roles according to their abilities and needs.

As a member of the instructional staff, the media specialist serves every aspect of the social studies curriculum, including those which originate from teacher-led activities, from interest groups, and from individual exploration. The media specialist's contribution to the total social studies program is made in various ways, dependent upon the needs generated by the learning situation, and the immediate goals of the teacher, media specialist, and students.

For example, to introduce students to their surrounding world, teachers and media specialists need a vast array of resources. To get a broad overview of the world, actual experience can provide personal data about the concepts to be explored. An indepth study of folk tales, literature, music, and art can be used in the study of the culture. To further enhance this overview, the media specialist provides globes, wall maps, and graphic material in locating information. Working individually, some students may search for concise information in reference books, while others are organized into as many working groups as seems desirable. Some students will get their information from watching films and going on trips. Still others will select tradebooks for reading in the media center, classroom, and at home. Tradebooks will give more current information as well as a variety of topics through stories, poems, folktales, and biographies. Many students may listen with earphones to recordings of music and folktales. Another group may be involved in studying slides and filmstrips at individual viewing centers, while other students look for recent articles in periodicals, pamphlets, and clippings in the vertical file. A wide range of print and nonprint materials should be utilized in order to meet the needs of all abilities in the classroom.

In every community there are people who have traveled extensively, know something, or have done something which students would find useful in their studies. The media specialist makes the community resource file available to these students. For example, local storekeepers, policemen, political offi-

cials, members of chambers of commerce, recreation workers—all have special knowledge about a local situation. Resource people can verify information that has been secured in the students' research. The student may tape the interview or he may ask the person to visit his class so that all the students are exposed to the information.

The media specialist may provide a file of scheduled television programs which students might be able to watch in school or at home in the evening in order to enhance their study. Television may stimulate inquiry and focus on in-depth study of materials. Television enlivens facts. Television must be integrated with other learning activities. Commercial programs recorded on videotape can become potential educational aids to be used as needed right in the classroom. Closed circuits with taping facilities will allow students to see and hear video recordings of their own discussions—their own "interaction."

Making models and tangible objects available for students to examine can give them an accurate understanding which would otherwise be impossible. Artifacts such as weapons, utensils, tools, clothing, ornaments, jewelry, pottery, musical instruments, and art objects take on new meaning when children can see and handle them. By such means, children are greatly motivated.

In the planning, the teacher and media specialist will attempt to have as much realia as possible. They help to arouse the student's curiosity as to what the objects are, how they are or were used, why, and when. This curiosity leads the student to making these objects; they do research in print and nonprint materials in order to find out how.

Through the use of the opaque projector, a variety of opaque materials (printed pages, pictures, diagrams, maps, coins, and other graphic materials) can be reflected on a screen in a darkened room, thus permitting an entire class to examine an item together without passing it around the room. The projection of maps, graphs, tables, and other illustrative materials makes the opaque projector a particularly valuable aid.

A wide range of media have been used: books, periodicals, pamphlets, still pictures and study prints, charts, maps, simulation games, filmstrips, 8mm loop films, 16mm films, videotape recordings, audiotape recordings, television, disc recordings, models, and realia.

A flexible classroom arrangement is desirable. Wherever possible, furniture should be grouped so that students can carry on individual work on committee projects. There should be a place for the construction of models and displays. Teacher-student planning is important, both for identification of interest and for guidance in pursuing these interests. Such activities help children organize, clarify, understand, and assimilate their data. Activities infuse data with life.

When the social studies unit has been completed, the media specialist can assist the teacher by helping to evaluate the contributions of the materials. The media specialist can learn which materials were effective, which were appropriate or out-of-date, and which were too easy or difficult for the purpose intended. Parts of the unit that needed additional materials may also be identified.

The teacher and media specialist will have been freed from the day-to-day discussion and interpretation of the traditional approach by providing more individual attention to the students. The use of a variety of materials is made available by the media specialist because the media program functions as an integral part of the instructional program.

Media and VOCATIONAL EDUCATION

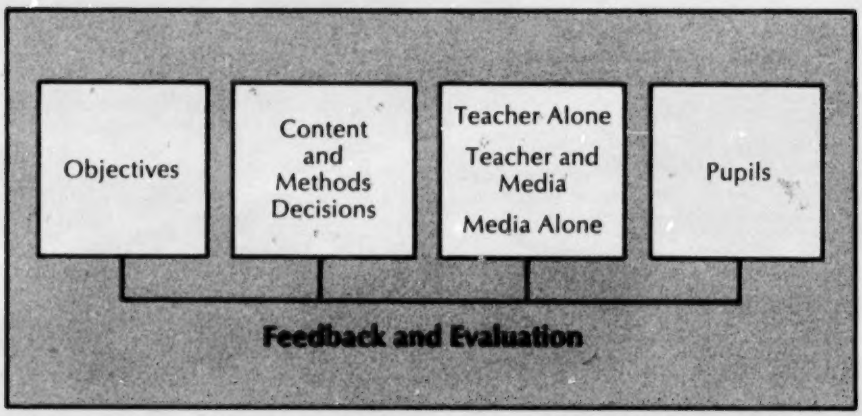
"The intrinsic value of vocational education lies in its relationship to the social and economic development of the nation. It has often been said that the greatness of the nation is not its tremendous wealth but its ability to utilize its human resources wisely. Vocational education is a social process concerned primarily with people and their part in doing the work society needs done; it is concerned with preparing people for work and with improving the work potential of the labor force. For people, this means economic independence, self-realization, and dignity. Their work results in the production of the goods and services needed by a dynamic society."[1]

[1] Samers, Gerald and Little, Kenneth J., editors. *Vocational Education: Today and Tomorrow* (Madison University of Wisconsin, Center for Studies in Vocational and Technical Education, 1971), ch. 1, p. 3.

Like every other facet of the school program of today, vocational education has been impacted by the knowledge explosion, technological developments in communication, and innovations in curriculum design. Educators talk about differentiated staffing, team teaching, flexible modular scheduling, learning packages, media mix, micro-teaching techniques, and the active involvement of learners as attempts are made to provide the kind of educational program that meets the needs of today's society.

"Instructional management strategy" is one of many terms borrowed from industry which has begun to appear in curriculum literature. At the classroom level, this can be translated into the concept of an instructional system.

An instructional system is a scientifically developed integration of: (1) teachers, (2) content and methods, and (3) media. These elements are directed towards the attainment of specific educational objectives by learners. An instructional system can be diagrammed as follows:



Let us focus on the "media aspect" of this instructional system and the implications of the use of media in vocational education. No one argues the soundness of self-instruction and individualization or tailoring educational experiences to meet the needs, interests, abilities, and learning modalities of youth. But there are concerns about how this can be accomplished. Effective use of instructional media points the way.

Studies have shown that the complicated teaching/learning process is greatly enhanced by the use of a multimedia approach which involves a simultaneous combination of listening, viewing and/or seeing. Media is not an end in and of itself, but a means to an end, and today's educator cannot afford to be uninformed of its potential or avoid its use. Even though the use of tools and equipment has always been a part of the vocational technical education process, sufficient emphasis has not been given to the use of instructional media in most classrooms.

By its very nature, risks and hazards are an everyday fact for vocational teachers and students. Individual students are involved with varying types of power equipment, machinery, and heavy materials such as block, lumber, and metal, while working in a variety of areas. Under these circumstances, vocational-technical education instructors have found it necessary to schedule and conduct group training sessions for entire classes, because they cannot allow individual students to remain in the work area while instructing in the classroom.

With the implementation of criterion-referenced, individualized instruction for vocational education, many areas requiring formalized classroom teaching/learning experience can be given over to one or more of the many mediated modes of instruction now available. In this way, the teacher can be freed from the mundane and often useless chore of giving mass presentations and can assume the new and much more important role of a diagnostician and prescriber. The teacher is free to move in the shop or work areas as individual students are plugged in to the technology with which they need to be working, without hinderance to themselves or other class members. Thus, a two-fold purpose is served—that of providing the necessary supervision for safety as well as instruction, while maintaining an ongoing basic instructional thrust by the way of mediated instructors.

A major problem in present training programs is the failure to deal adequately with students differing in ability and rate of progress. To solve this problem, instruction must be designed to fit the individual student. Learning by media is primarily a function of organizing and offering alternative presentation modes. The choice may not always be between media but between individually-paced or group-paced instruction, and specifically, how much the pace of the instruction is to be controlled by the individual student. It should be emphasized that the combination of printed and pictorial materials, when carefully systematized and established in a self-pacing unit of work, can be most efficient for learning. Media mix should also be stressed. Usually it is not one medium which provides solutions to each student's problems but, rather, a mixture of media which offers variety and alternatives to the learner and to the teacher.

Films are an invaluable resource for making clear the applications of principles or processes in real-life situations and for acquainting learners with new developments in business and industry. In addition, many industries are producing films for informational purposes and often these are made available for school use.

The filmloop is unsurpassed as a means of making clear a single concept. The learner simply repeats the sequence illustrated in the endless loop as often as he needs to in order to learn; for example, how to safely adjust a circular saw or set a sleeve in a bodice.

Filmstrips, in combination with cassettes or reel-to-reel tapes and headsets, can be set up in individual carrels or learning stations so that students can study and pace themselves independently.

Audio-tape recorders, headsets, and the other necessary apparatus can be set up for individual use. Headsets leave both hands free to manipulate apparatus while the learner listens and looks.

Use of video tape can add new dimensions to learning. An individual can be video taped while performing a skill. Instant play-back can be studied and the learner can evaluate his own performance. Absent students can view video-taped lessons or review lessons for clarification. Teachers can demonstrate a skill in a step-by-step fashion or indicate a proper trouble-shooting procedure in a shop.

No particular expertise is required of a photographer who uses the visual maker to create a slide series. Accompanying narration on tape completes this learning package.

The overhead projector can be used in a fashion similar to the chalk board. Because the teacher can control the part of the projectile being seen by viewers, the overhead is a more effective teaching tool. Illustrations and diagrams from books can be reproduced on transparent acetate by using a simple office copying machine. Circuit boards and chemical reactions can be put on the stage of the overhead projector and enlarged on the screen.

Modern technology continues to provide new media and to suggest possible combinations of methods and materials. Effective use of instructional media in vocational education is limited only by the imagination. School media specialists are knowledgeable about media. Vocational educators are the experts in their field. A teaming of the two can make learning vital, exciting, and rewarding.